product information

Ascend GX 550

Core ATM Switch

Forming the Foundation of the New Public Network

ASCEND

Feature Highlights

The Core of the New Public Network

To meet growing data transport requirements, an intelligent New Public Network must be built. The core of this network requires Quality of Service, high availability, capacity with cost-effective scaling, and end-to-end performance. The GX 550 Core ATM Switch brings unsurpassed intelligence, availability, capacity, performance and port densities to build a "smart core" for the New Public Network.

Carrier-Class For the Core

The GX 550 Core ATM Switch provides the capacity, performance and port densities required for carrier services. The GX 550 combines industry-leading port densities for OC3/STM-1 and OC12/STM-4 interfaces with industry-first OC48/STM-16 high-speed trunking, providing carriers with capacity for today and investment protection for tomorrow.

The scalable, high-capacity GX 550 switch supplies the high-availability that is essential at the core of the New Public Network (NPN). Features such as lossless fabric switchover, port redundancy using 1+1 Automatic Protection Switching, line card redundancy, holdover timing, and extensive port and circuit statistics provide carrier-class networks with the resiliency that's necessary to maintain network integrity.

Working Solutions for Carriers, Internet Service Providers and Online Service Providers

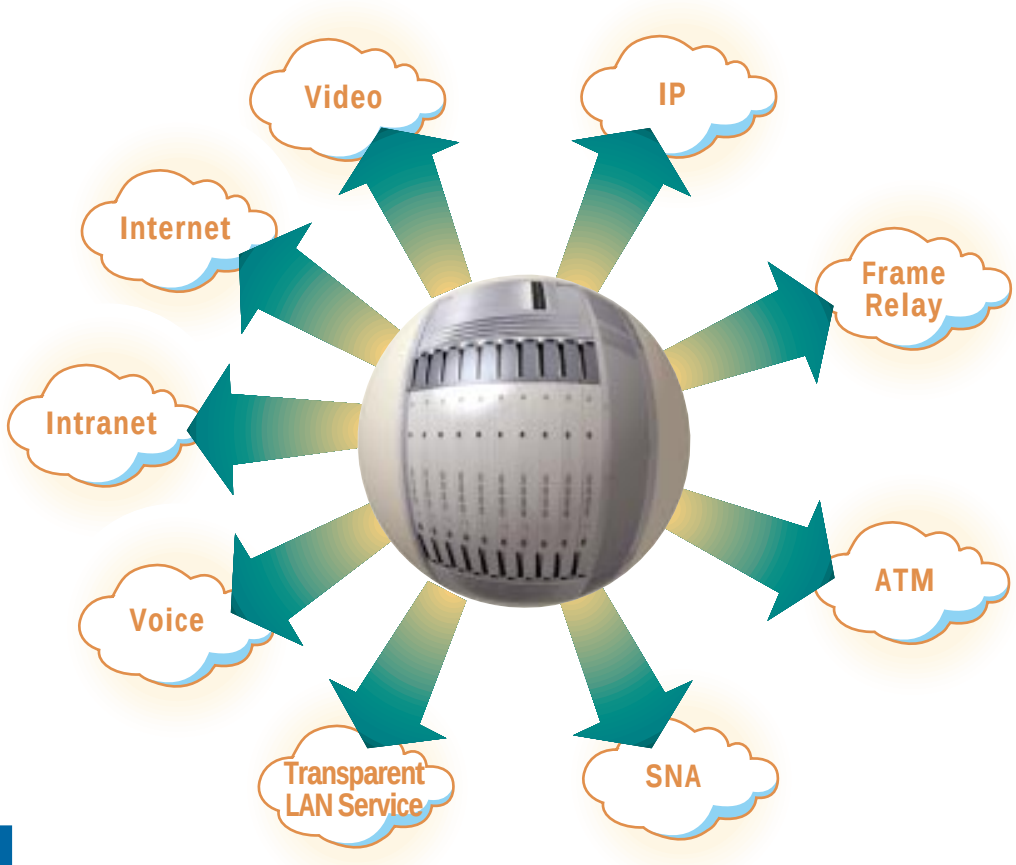
Building the New Public Network

The trend in telecommunications is shifting rapidly from private wide area networks (WANs) to public data services, constructed today by service providers. Today's architecture uses the Time Division Multiplexing-based voice telephony network to provide WAN infrastructure for data services. This infrastructure simply does not have the capacity and flexibility to support the exponential growth of IP traffic, driven by both intranets and the Internet. The traditional voice telephone network cannot provide the infrastructure for success in data service provisioning.

As users migrate their WAN data to public services, carriers need to build an infrastructure that is optimized for multiuser, multiservice data requirements. Ascend calls this infrastructure the New Public Network.

This New Public Network requires intelligence at the core. It calls for a product that meets the requirements of Quality of Service (QoS), high availability, capacity, end-to-end performance and cost-effective scalability for investment protection. The GX 550 delivers on these requirements with its "smart core" capabilities.

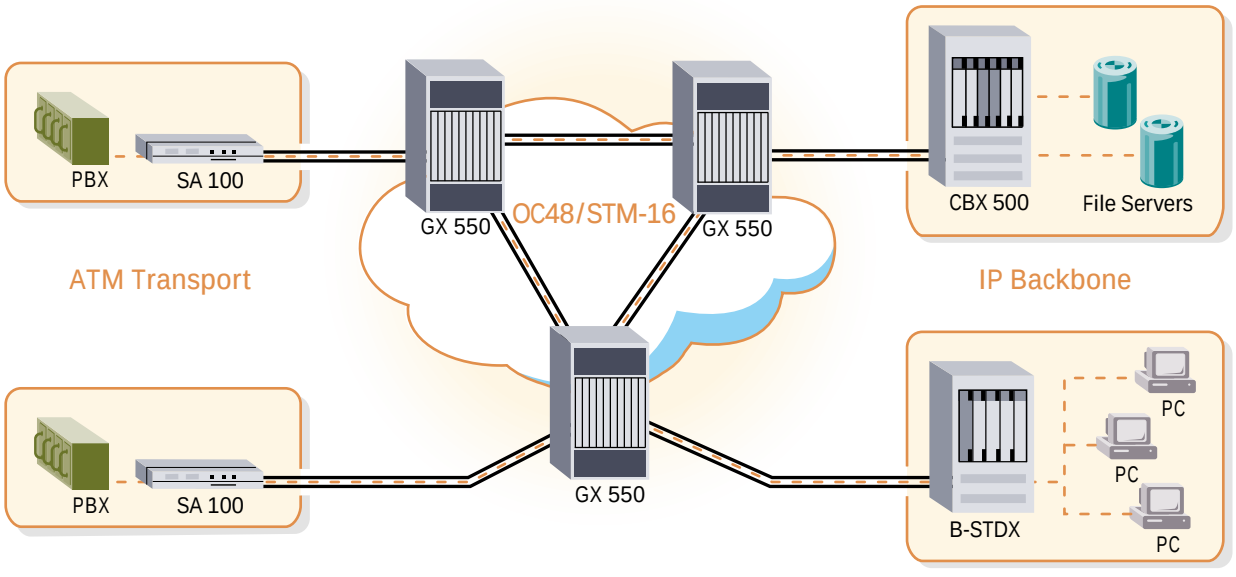
Advanced Services Delivery



Coupled with customers moving from private WANs to the NPN, the magnitude of both cell and packet traffic traversing the network has brought ATM to the forefront as the transport of choice for the core of the NPN. Only by running a connection-oriented ATM core can QoS requirements be met.

In addition, those customers moving to the NPN expect performance levels equal to their private networks. The GX 550 delivers this performance as well as superior scaling, capacity and QoS with its “smart core” capabilities.

Native ATM Service Deployment
IP Backbone



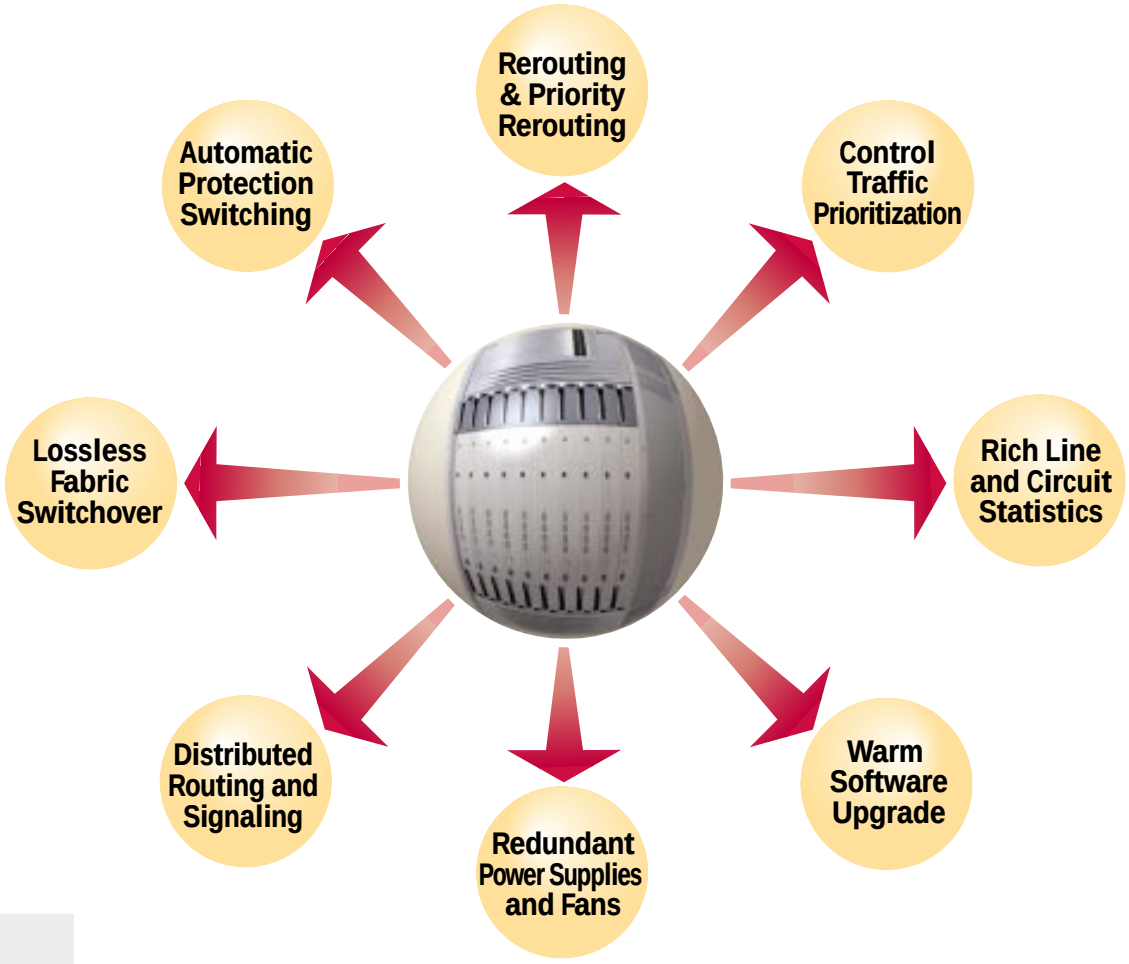
Network Availability: Delivering Service Level Guarantees

In the BT/MCI Global Communications Report 1996/97 Gallup Survey Results, 68% of respondents indicated that their need for high reliability data transmission is not being met. As data networks become critical to business users, the core of the NPN must provide the same availability that exists today in the voice telephony network. As customers move from private line services to public data services, they are demanding service level guarantees that span the spectrum–from simple up-time criteria through complex per Virtual Circuit (VC) performance guarantees.

A sophisticated set of features is required on the switch to provide high availability. Historically, this has meant redundant power supplies and cooling systems. The GX 550 raises the bar, delivering advanced availability features for the core of the network.

Lossless fabric switchover on the GX 550 switches from active to standby with no loss of data. Distributed routing and signaling control eliminate a single point of failure on the system. Warm software upgrades minimize disruption to user traffic by taking advantage of hardware-based switching during software reconfiguration. Automatic Protection Switching (APS) provides millisecond recovery on transmission facility failures. If the transmission facility cannot be recovered, circuit rerouting can be performed at a rate of hundreds of thousands of circuits per second, ensuring that services remain up and running. Rich line and circuit statistics provide detailed service statistics for delivery of service level guarantees. Control traffic prioritization ensures that management traffic is delivered, regardless of network congestion. The GX 550 delivers the highest availability for the core of the NPN.

Industry-leading Availability



Introducing the Smart Core

Service providers must build a core network that can not only move bits at very high speeds but can provide the advanced networking services required in today's competitive environment. The GX 550 provides the capacity and scalability of a core switch with the service capabilities and cost-effectiveness of an edge switch.

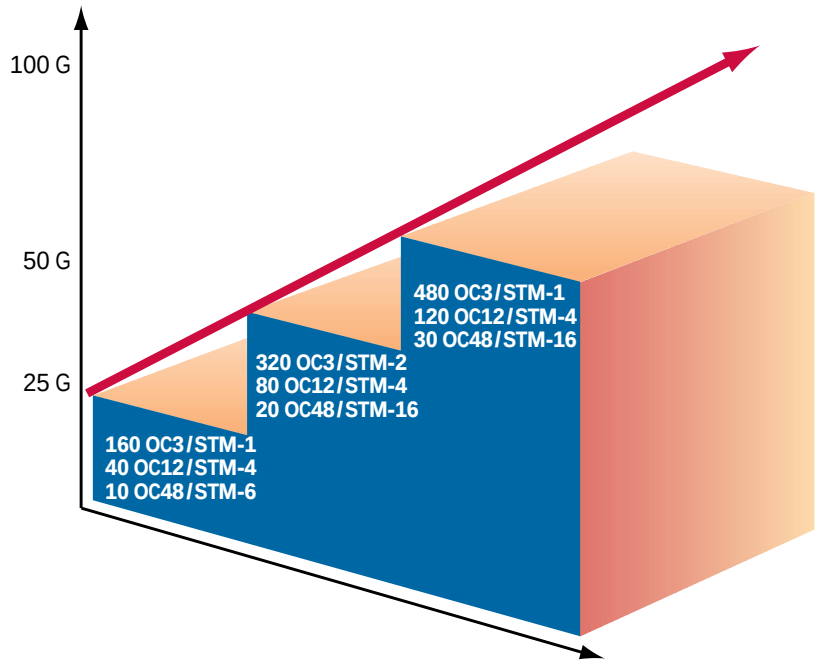
These features include connection agile buffering with advanced traffic management that provides the ability to efficiently mix all traffic classes and users on a single network; high Switched Virtual Circuit (SVC) setup rates approaching 5000 SVCs per second for continued scalability; and Service Aware routing that provides end-to-end QoS and creates enhanced services, such as Virtual Private Networks. The GX 550 advanced networking features allow service providers to differentiate with Closed User Groups, Security Screening and SVC-to-PVC interworking.

Finally, the GX 550 gathers extensive statistics to be used for customer accounting, service level guarantees and reporting. These statistics are used by the NavisCore™ and NavisXtend™ family of network management products to provide end-to-end service and network management.

Capacity

The GX 550 is a 100 Gbps switch that supports industry leading OC3/STM-1, OC12/STM-4 and OC48/STM-16 port density. The GX 550 provides a 25 Gbps entry configuration, giving service providers a cost-effective core switch option with the ability to modularly scale to 100 Gbps. The GX 550 is the first to deliver OC48/STM-16 trunking capability, allowing service providers to continue to scale their networks and keep pace with the exponential growth of IP traffic.

Scalable Capacity



Economics of QoS

Multiservice/multiuser carrier networks are a reality. Service providers must support a complete mix of voice, video and data over a single network, while providing differentiation between users, for example, a teenager surfing the web versus a company's intranet traffic.

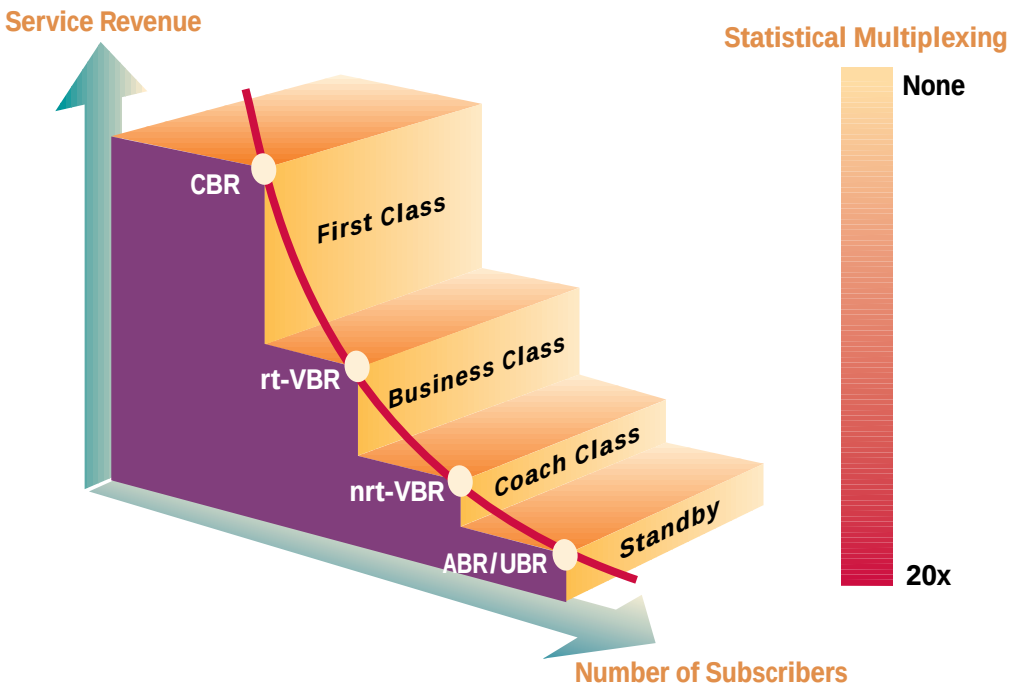
The GX 550 delivers the ability to differentiate and guarantee QoS for all traffic types, through either the Enhanced Quad-Plane architecture, which provides user-definable Classes of Service, or through per-VC queuing, which gives service providers infinite levels of QoS control.

Traffic Agility

The reality is that much customer premises equipment is ATM-unaware in that it does not understand traffic contracts, policing or shaping. Thus, the network must be able to respond effectively to instantaneous bursts of data and be able to absorb, as well as intelligently forward, this data. The GX 550 delivers this functionality through dynamic buffer sizing and flexible traffic shaping.

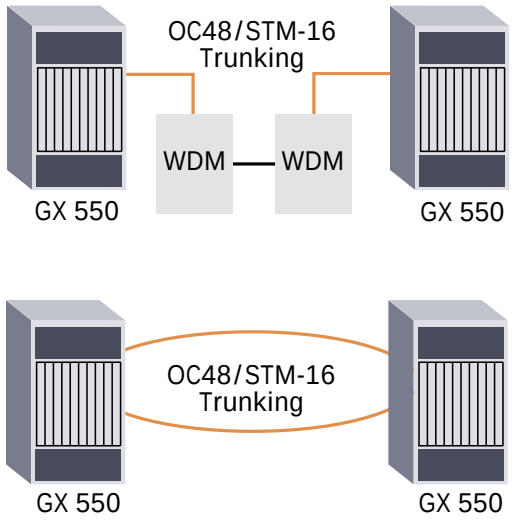
Congestion in networks is inevitable, and the network must be able to respond fairly and deterministically to control congestion. The GX 550 uses cell discard techniques for voice and video applications, while intelligent packet discard is used for data applications, increasing network throughput and eliminating undesirable cell loss scatter across multiple connections.

Economics of QoS



Meeting at the Glass

Today's data networks are backboned at OC12/STM-4 rates. The continuing growth in data being transported over public networks makes it critical that service providers move to OC48/STM-16 based backbones. As data is moved at OC48/STM-16 rates, the distinction between switching and transmission blurs. Rather than backboning over a traditional SONET/SDH ring architecture, service providers have the option to connect GX 550s directly to the fiber through Wave Division Mulitplexing (WDM) equipment or through direct fiber connect. This moves statistical multiplexing into the transmission facility and gives carriers the most cost-effective and efficient means for data transport.

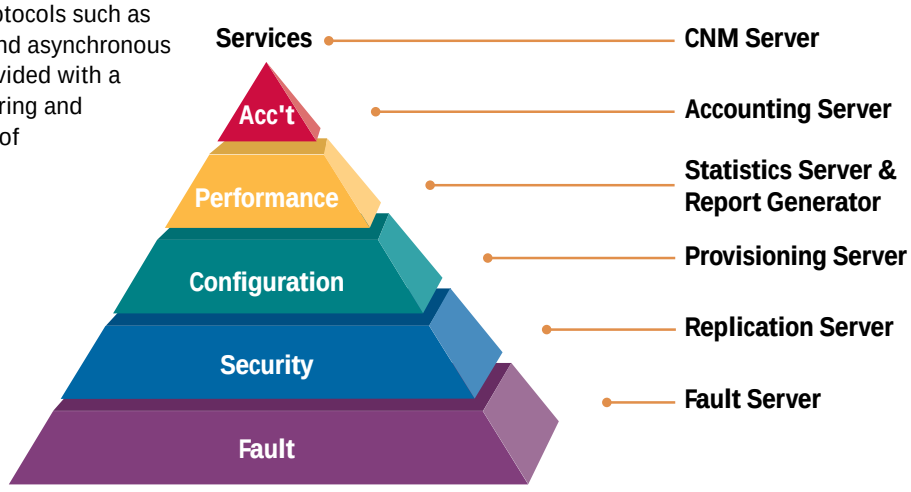


Advanced Service Management

The NavisCore™ and NavisXtend™ family provide standards-based management of Ascend IP, Frame Relay and ATM backbone networks from end to end, giving service providers unprecedented service management control.

The NavisCore Network Management System offers exceptional management of the GX 550 network, using industry-standard TCP/IP protocols such as SNMP, TFTP and Telnet. Ethernet and asynchronous serial console connections are provided with a command line interface for monitoring and configuration as well as collection of performance statistics.

In addition, NavisXtend applications deliver sophisticated add-on functions, such as automated provisioning and real-time statistics monitoring. Web-based interfaces allow cost-effective customer network management. Together, NavisCore and NavisXtend offer unparalled mangement control.



The GX 550: The Foundation of The New Public Network

Ascend Communications, Inc. is strategically focused on delivering carrier-class products and technologies for building the New Public Network.

The GX 550 revolutionizes service delivery by providing a “smart core” for intelligence, availability, scalability and end-to-end QoS. The GX 550 ATM Core Switch, with its scalable 25 to 100 Gbps capacity and OC3/STM-1 through OC48/STM-16 interfaces, provides the high density, high-speed ATM, IP and Frame Relay support that’s necessary at the NPN core. Its high availability features, critical for network integrity, coupled with Ascend’s innovative, advanced network management system that reliably scales with network growth and provides the open approach to management, delivers the end-to-end QoS necessary for a multiservice “smart core” network.

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Ascend Communications, Inc. develops, manufactures and sells wide area networking solutions for telecommunications carriers, Internet service providers, and corporate customers worldwide. For more information about Ascend and its products, please visit the Ascend web site at http://www.ascend.com, or e-mail info@ascend.com.

Ascend markets the B-STDX, CBX, GX, IP, MAX, Multiband, MultiDSL, Navis, Pipeline, SA, SecureConnect and STDX families of products. Ascend products are available in more than 30 countries worldwide.

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